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# Citizens' Bulletin

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The Connecticut Department of Environmental Protection

## Connecticut's forest nursery

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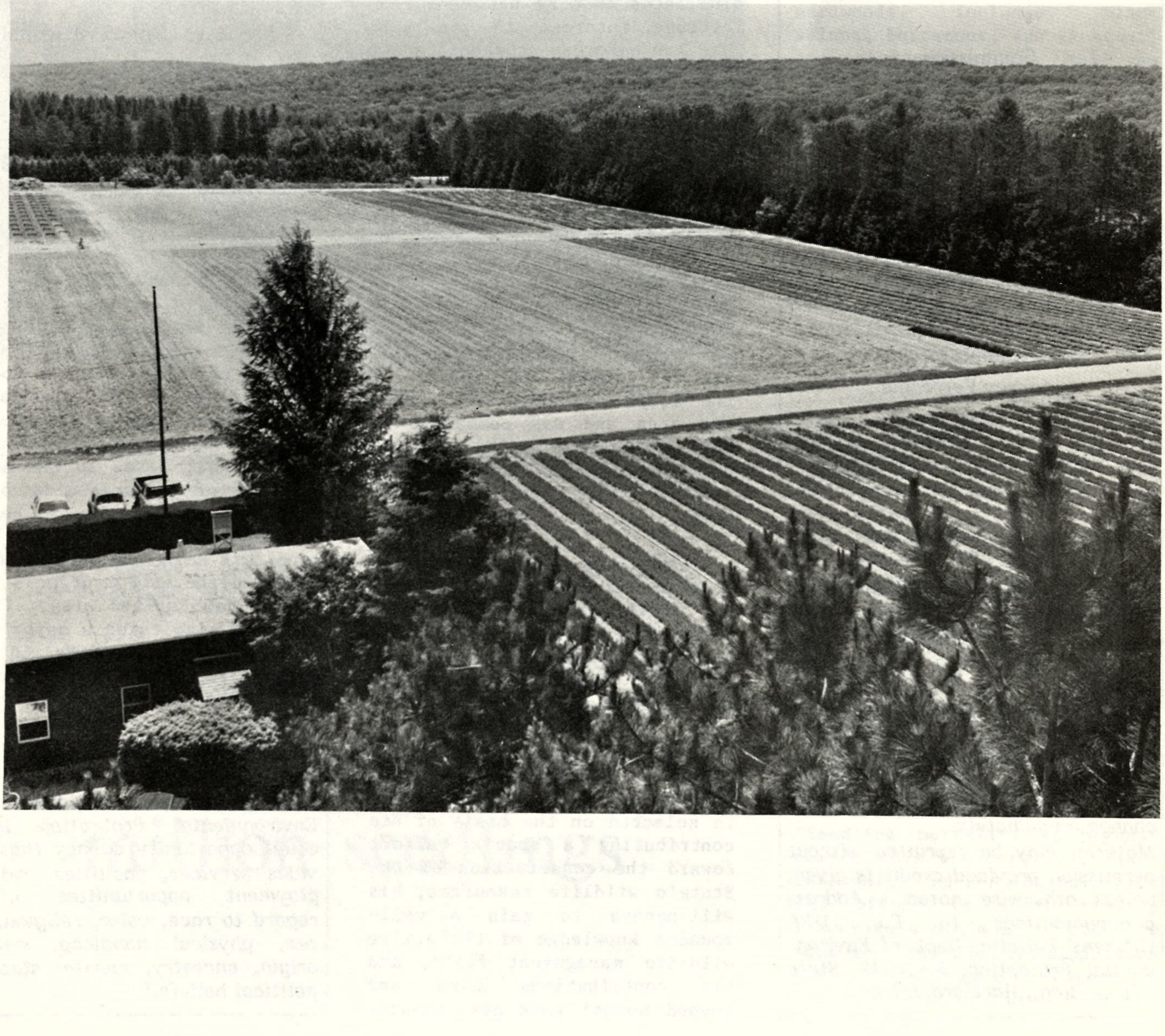

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## McNamara officer of year

William J. McNamara of New Hartford has been named Connecticut's Conservation Officer of the Year for 1981. McNamara is responsible for a patrol area consisting of the towns of Colebrook, Hartland, Winchester, Barkhamsted, New Hartford, and Canton in DEP's Western District. He has served this zone since he was appointed Conservation Officer in December 1968.

In his recommendation of McNamara, District I Law Enforcement Supervisor James Jones wrote, "His willingness to give talks to sportsmen's clubs, scout groups, and area high schools concerning job related activities and department programs (without being assigned) indicates that he has more than average interest in his job. His law enforcement record shows a well balanced enforcement policy with an interest in all types of violations within the scope of his jurisdiction."

McNamara was responsible for overseeing the two-week regulated deer hunt held on Metropolitan District Commission Property in Barkhamsted in December 1980. He was involved with registration of hunters, law enforcement field checks, and the general coordination of the 1,910 sportsmen who hunted the area and was commended by DEP's Wildlife Unit for his hours of efforts to make this special hunt successful and safe.

Wildlife Officer of the Year is an honor bestowed upon one of the State's Conservation Officers each year by the DEP Law Enforcement Unit. Nominations are received from District Law Enforcement Supervisors.

According to Frederick J. Pogmore, Chief of DEP's Law Enforcement Unit, the recipient is selected on the basis of his contributing a special effort toward the conservation of the State's wildlife resources, his willingness to gain a well-rounded knowledge of the entire wildlife management field, and his contributions above and beyond normal work assignments.

As the officer selected, McNamara will receive the Shikar Safari Club International Award of a certificate, a plaque showing the club's emblem, and a donation on behalf of the recipient to the National Foundation for Conservation and Environmental Officers. McNamara will also receive the Northeast Conservation Law Enforcement Chief's Association award at the Northeast Wildlife Conference.

McNamara is a member of the National Wildlife Federation, Connecticut Chapter, and a member of the Connecticut Conservation Officers' Association. He served as CCOA's president for two terms. He is also a charter member of the High Rocks Sportsmen's Association. ■

## Fredette Conservationist

Charles Fredette of DEP's Water Compliance Unit was recently named Professional Conservationist of the Year by the Association of Soil and Water Conservation Districts. Fredette was nominated by the Litchfield District for his work on the Bantam Lake watershed and the Lake Waramaug projects. He has recently finished working with the Environmental Protection Agency on a study of phosphorous enrichment of the Housatonic River. In the past, Fredette has studied and reported on the water quality of recreational lakes in the state as part of an area-wide basin sampling program. He has been a representative on the New England Acid Rain Task Force, which reported the effect of acid rain in the New England area. Fredette has also taken a major part in the study of PCBs in the Housatonic River and recently coauthored a report on the contamination of sediments and transport of PCBs in the river. ■

*"The Connecticut Department of Environmental Protection is an equal opportunity agency that provides services, facilities and employment opportunities without regard to race, color, religion, age, sex, physical handicap, national origin, ancestry, marital status or political beliefs."*

Audrey Handelman photos

*By Audrey Handelman, Environmental Intern*

# State Forest Nursery gives intensive care to two-and-a-half million seedlings

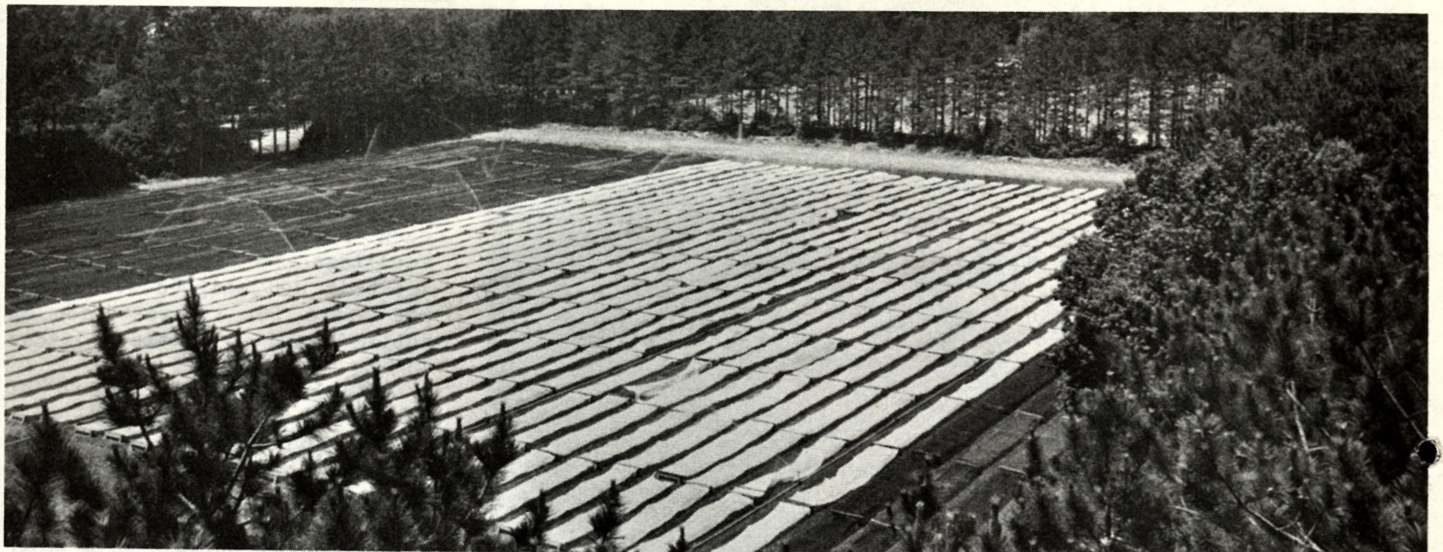
On 13 acres of what once was abandoned Voluntown farmland, visitors may see the most intensive and costly facet of forest management practiced in Connecticut. The rejuvenated parcel is the site of the Pachaug State Forest Nursery, where each spring over two million seedlings are lifted from the seedbeds and shipped throughout the State for reforestation on public and private lands.

With time, and a bit of luck, these seedlings will become the conifer forests or Christmas tree plantations of the future. Over a dozen species of conifer seedlings are grown at the nursery, the most popular being white pine, hemlock, white spruce, Norway spruce, and Douglas fir. Some hardwoods, including black walnut, butternut, and chestnut, are also raised as well as several shrubstock species that provide food and cover for wildlife.

According to Nurseryman Martin Cubanski, the elapsed time from seed to a 12-inch seedling is two years for most of the species raised. Only at that age are the seedlings sufficiently tall and hardy to withstand the hazards of being outplanted to new environments.

Unlike most farming operations, sowing here takes place late in the fall rather than in the spring. Cubanski says that the seeds of most conifer species have a built-in dormancy that is broken only by exposure to cold, moist temperatures. Such conditions are met if the seed is sown several months before the spring.

Seeds of most species sprout by early May, and for six to eight weeks following germination the young seedlings are extremely vulnerable to frost, heat, intense sunlight, and a host of insects and diseases. "Seedling mortality is highest during this brief period," says Cubanski, "and considerable time and effort is spent keeping losses to a minimum." Protective measures include the judicious use of irrigation water to mitigate temperature extremes from both frost and intense



heat. Sunlight is filtered by spreading shadecloths over the seedbeds, and pesticides are applied as needed. Such intensive care is justified by the value of the crop grown. According to Cubanski, each acre of seedbed area supports about 750,000 seedlings worth about $35,000.

By July 1st the young plants have become hardier, and the emphasis gradually shifts from protecting the seedlings to growing the crop. For the remainder of the season, the nursery staff will attempt to keep growing conditions at optimum levels by frequent irrigation and the use of nitrogen fertilizer. Hand weeding and herbicides are necessary during this period to eliminate competition from the ubiquitous broadleaf weeds and grasses.

During the winter, the seedlings are treated with an anti-dessicant. "This is to prevent drying out," says Cubanski. "What happens is that no water is available through the roots from the frozen soil. But if you get a sunny day, even if it's cold, so much water may transpire from the needles that the trees may actually dry out completely."

In the spring of their second year, the trees take an enormous growth spurt. In about a month they may add as much as six inches to their yearling height of one to two inches. Care of the seedlings during their second growing season is a modified repetition of that given them the previous year. The seedlings are fertilized regularly with nitrogen, and water is used generously while herbicides are used as sparingly as possible.

According to State Forester Robert Garrepy, until a few years ago summer workers would spend all summer on their hands and knees, weeding the beds. "Now we use chemicals for the softwoods--it's tricky, putting down enough to kill the weeds and not so much that you kill the trees--but the hardwoods still have to be weeded by hand."

## Laws amended on fuelwood by weight, landowner liability

The Department of Environmental Protection would like to remind vendors of fuelwood and the general public of a 1980 modification in the State's General Statutes governing fuelwood sales. The previous requirement that wood be sold by the cord (128 cubic feet of compactly piled wood) or fraction thereof has been amended to allow commercial dealers to sell by weight if they so desire.

The law was originally drafted to standardize the quality of fuelwood sold in Connecticut. In addition to allowing the sale-by-weight option, the amendment defines "commercial dealer" as a person who sells more than 25 cords or more than 65 tons of fuelwood in any one year. In order to qualify as "seasoned wood" under the law, fuel must be cut and air dried for at least six months if sold by the cord or cut and dried under cover for at least six months if sold by weight. Wood sold by weight must be accompanied by a delivery ticket verifying that the product was weighed by a licensed public weigher on an approved scale and must also include information on price and parties involved in the sale.

In a related vein, the 1980 Legislature passed a law limiting the liability of land owners who allow the general public to harvest fuelwood on their land. The owners are not liable for damages as a result of injury to a person harvesting wood unless the injury is caused by the owner's failure to warn of a dangerous hidden hazard he is aware of. This provision only applies to those landowners selling 100 cords of wood or less each calendar year.

The increased demand for fuelwood over the past few years has made laws protecting both the sellers and consumers of the product necessary. If you have any questions regarding fuelwood, contact the Forestry Unit, Department of Environmental Protection, 165 Capitol Avenue, Hartford, CT 06115 (566-5348). ■

All seedlings are shipped from mid-April to early May when they are two years old, this being the most favorable time to transplant them to insure survival. Shipping time is the busiest period at the nursery. Cubanski and three other full-time employees are backed up by one dozen part-time personnel, who sort and count the trees after they have been brought in from the nursery areas.

"It takes a tough person to make it through those six weeks in the packing shed," says Garrepy. "It's 40 degrees in there and always wet. It's a tribute to Marty and his people that they're packing three quarters of a million trees more than before he came, with two fewer people and in two weeks less time." After packing, the trees are shipped to various distribution points around the State, where buyers may pick them up. After the seedlings have been removed, a cover crop is planted to protect the soil until the autumn when the next seeds are sown.

The seedlings are grown for sale, at cost, to Connecticut landowners who qualify to buy them. Some are also sold to the State of Rhode Island. To qualify to purchase forest planting stock, the landowner must intend to establish a forest plantation or commercial Christmas tree plantation on one or more acres, not including house lot acreage. A landowner may purchase up to 10,000 seedlings of a single softwood species. These are sold in bundles of not less than 250 for a cost of $48/1000.

If a landowner wishes to attract wildlife to his land by providing cover and food but he does not qualify for forest planting stock, he may purchase the "Buffer Bunch," which consists of 20 tree and 30 shrub seedlings, for $10, or the Wildlife/Soil Conservation Seedling Packet, consisting of 150 seedlings, for $19.

"We're one of the few places which sell our trees at cost," Garrepy says. "Other states can sell at a loss and are subsidized by tax money. We can survive like this because there's virtually no competition from the private sector--I know of only one private seedling nursery in New England, in western Maine."

The forest nursery at Voluntown is stocked with about 2.5 million trees. "We're operating at full capacity now," says Cubanski. "In the past five years, we've really expanded. Sometimes we've been sold out of stock for months in advance."

Since the early 1900s, Connecticut has promoted a tree-planting program, to encourage use of abandoned farmland and to improve existing stands. From 1928 to 1955, the State Forest Nursery was located at the Peoples State Forest in Barkhamsted. The flooding of August 1955 substantially destroyed the nursery, wiping out 75 percent of the stock and stripping seedbeds of topsoil. It was decided that continuing the nursery at that location would be impossible.

With the help of the Soil Conservation Service and the U.S. Forest Service, a new site was selected in Voluntown. In December 1955, a special session of the legislature appropriated $36,000 to re-establish the nursery and supply stock. The site was chosen with several considerations in mind. It was close to Doaneville Pond, allowing for easy access to irrigation water. The site was in the southern part of the State, allowing for earlier shipment in the spring. In addition, the site had supported a red and Scotch pine plantation for 20 years; it appeared relatively unplagued by insects and disease.

No area is free now, however, from the infestations of gypsy moths which denuded so many of Connecticut's trees last summer. "We haven't escaped them," Cubanski comments. "We've had to spray a couple of times. We can't afford not to--I'd say we've got close to a $300,000 investment to protect." There is a feeling at the Forest Nursery, though, that the value of the trees is more than monetary. ■

# Thinking of skiing cross-country?

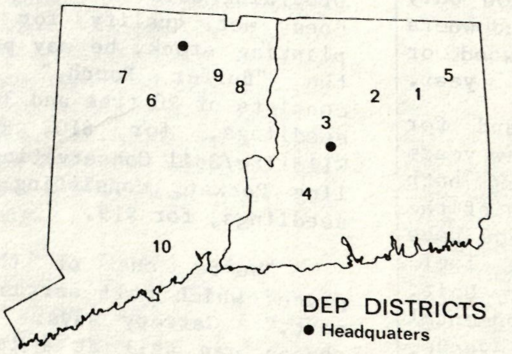
## A little planning is strongly advised

*By Maria Walker, DEP Information & Education Unit*

### DEP's top ten cross-country ski locations (with plowed parking)*

| EASTERN DISTRICT | LOCATION | TOPOGRAPHIC MAP NAME | DESCRIPTION |
|---|---|---|---|
| 1. Goodwin State Forest | North Windham | Hampton | Meadows & trails |
| 2. Mansfield Hollow State Park | Mansfield | Spring Hill | Marked wooded trails |
| 3. Gay City State Park | Hebron | Marlborough | Wooded trails |
| 4. Hurd State Park | East Hampton | Middle Haddam | Marked & rated trails |
| 5. Mashamoquet Brook State Park | Pomfret | Hampton & Danielson | Marked trails |
| **WESTERN DISTRICT** | | | |
| 6. Topsmead State Forest | Litchfield | Litchfield & West Torrington | Old woods road |
| 7. Mohawk State Forest | Goshen | Cornwall | Signed & rated trails |
| 8. Penwood State Park | Bloomfield | Avon | Roads & wooded trials |
| 9. Stratton Brook State Park | Simsbury | Avon | Easy flat trails |
| 10. Osbornedale State Park | Derby | Ansonia | Trails & meadows |

*In State Parks. Not ranked in order.



The season of cabin fever, that dread cold-weather ailment characterized by restlessness, boredom, general itchiness of the psyche, and the certainty that death is imminent if you get out of bed only to find that the sky is still gray, is, fortunately, one and the same as the season of cavorting in the snow. In such situations, where the problem is its own cure, therapeutic opportunities abound: skating, sledding, snowshoeing, ice fishing, curling, and bundling, just to name a few of the more popular winter pastimes. But each of these is not without its drawbacks. Who can really make a day of circling round and round on a half-acre sheet of ice? Sledding is good fun, except for the tiresome rule of physics that states, "What slides down must climb back up," or something like that. Ice fishing--you must be kidding. As for curling or bundling, how do you know when your're doing it right?

Snowshoeing has its merits, but the going is so slow that by the time you lose sight of your parked car, it's time to turn around if you want to get back by morning. Luckily for the hard to please, one form of winter recreation rises above the flaws of the others, combining exercise, fresh air, outdoor exhilaration, and genuine linear progression across picturesque snowy terrain. The rapidly growing sport of cross-country skiing is the ultimate cure for the cabin bound.

So I hear. Actually, my firsthand experience is limited to an afternoon of careening and crawling, with a forty year old pair of wooden skis, across a small golf course (in central Pennsylvania) on one of the first moist days of the spring thaw. As bungled as that outing may have been, it was enough to prove to me the claims of cross-country ski enthusiasts. It really is a fun and gladdening way to not only get from one point to another but to quietly sneak up on wildlife, get an idea of what the natural world looks like in wintertime, and give your legs a serious workout. Just in my little jaunt across the golf course I encountered a flock of visiting red polls devouring weed seeds. Attempts to approach them by other means, such as on foot or by snowmobile, would either have left me floundering in waist-deep snow drifts yards from the birds or would have flushed the flock before I was even in the neighborhood.

Because cross-country skiing is an environmentally sound form of recreation, the Department of Environmental Protection tries to encourage it. More and more people are attracted to the sport because of low initial investment, minimal recurring expense, and free access to usable areas. No permits or licenses are necessary to ski in Connecticut State Parks and Forests, but a little planning and preparation is strongly advised. After outfitting yourself with basic ski touring equipment (check with your local sporting goods dealer for advice and/or rentals) and choosing the area you'd like to ski, familiarize yourself with the terrain of the area by consulting a map. Some slipping and sliding is to be expected and even indulged in, but tumbling over cliffs is not suggested and can easily be avoided. Free maps are available for most of the State Parks and Forests from: DEP Parks and Recreation, Room 265, 165 Capitol Ave., Hartford, CT 06115 (566-2304).

Studying a U.S. Geological Survey topographic map is the best way to get a feel for any particular site and its potential pitfalls. The area detailed on each map is about seven by nine miles, and each map is identified by a geographic name. Topographic maps are available from: Publication Sales, Department of Environmental Protection, State Office Building, Room 555, Hartford, CT 06115 (566-3540).

The cost per map is $1.34 plus $1.00 handling, and checks should be payable to the Department of Environmental Protection. When ordering, furnish the name or names of the maps you want.

Once you've familiarized yourself with every rise and fall of the trail by poring over a topo map, make one last check on the most critical commodity of all: snow. For information on snow conditions, contact DEP's Eastern or Western District Headquarters (depending on where you're going) between 8:30 a.m. and 4:30 p.m., Monday through Friday. (Eastern Headquarters, East Hampton, 295-9523; Western Headquarters, Pleasant Valley, 379-0771.) Again this winter, radio stations WRCH and WRCQ will broadcast cross-country ski reports on Thursdays and Fridays at 7:30 a.m. and 4:30 p.m. and Saturdays at 7:30 and 8:30 a.m.

Finally, do not hit the trail without observing basic safety precautions. Even in my aforementioned golf course trek, I spent enough time face down in the snow to realize that things don't always go exactly as planned. Weather can change, injuries are possible, and your trip may take more time than you had anticipated. Experts emphasize these precautions: Ski with a group so that help is at hand if needed. Take along a sweater or windbreader in case of weather changes. Refrain from skiing across ponds, brooks, or other bodies of water because the condition of the ice is unpredictable. If you are a beginner, practice on reasonably level terrain until you become skillful. Also be aware that hunters may be in some areas during part of the skiing season and that there are authorized snowmobile trails in some of the State Forests. (The maps from DEP's Parks and Recreation Unit indicate where these trails are.) A lightweight pack including a first aid kit, matches, snacks, and other emergency supplies is highly recommended. Take note that none of the State Parks or Forests offer any food services, lodging, instruction, guided tours, rentals, or trail grooming.

The accompanying table lists ten state areas that offer good cross-country skiing and, importantly, plowed parking lots of varying sizes. The quadrangle name is listed for the appropriate topographic map for each area to assist you in ordering maps. ■

# Resource recovery comes to Windham:

## Simple technology a town can afford

*By Leslie Bieber, Citizen Participation Coordinator*

In 1977 the people of the Town of Windham, which incorporates the City of Willimantic, were informed that they would have to close down their landfill and find an alternative method of solid waste disposal. Four years later, Windham has become the first municipality in Connecticut to construct its own waste-to-energy plant. Extracting heat from the burning refuse, the Windham Energy Recovery Facility creates steam which is used in the manufacturing process at the nearby Kendall Company.

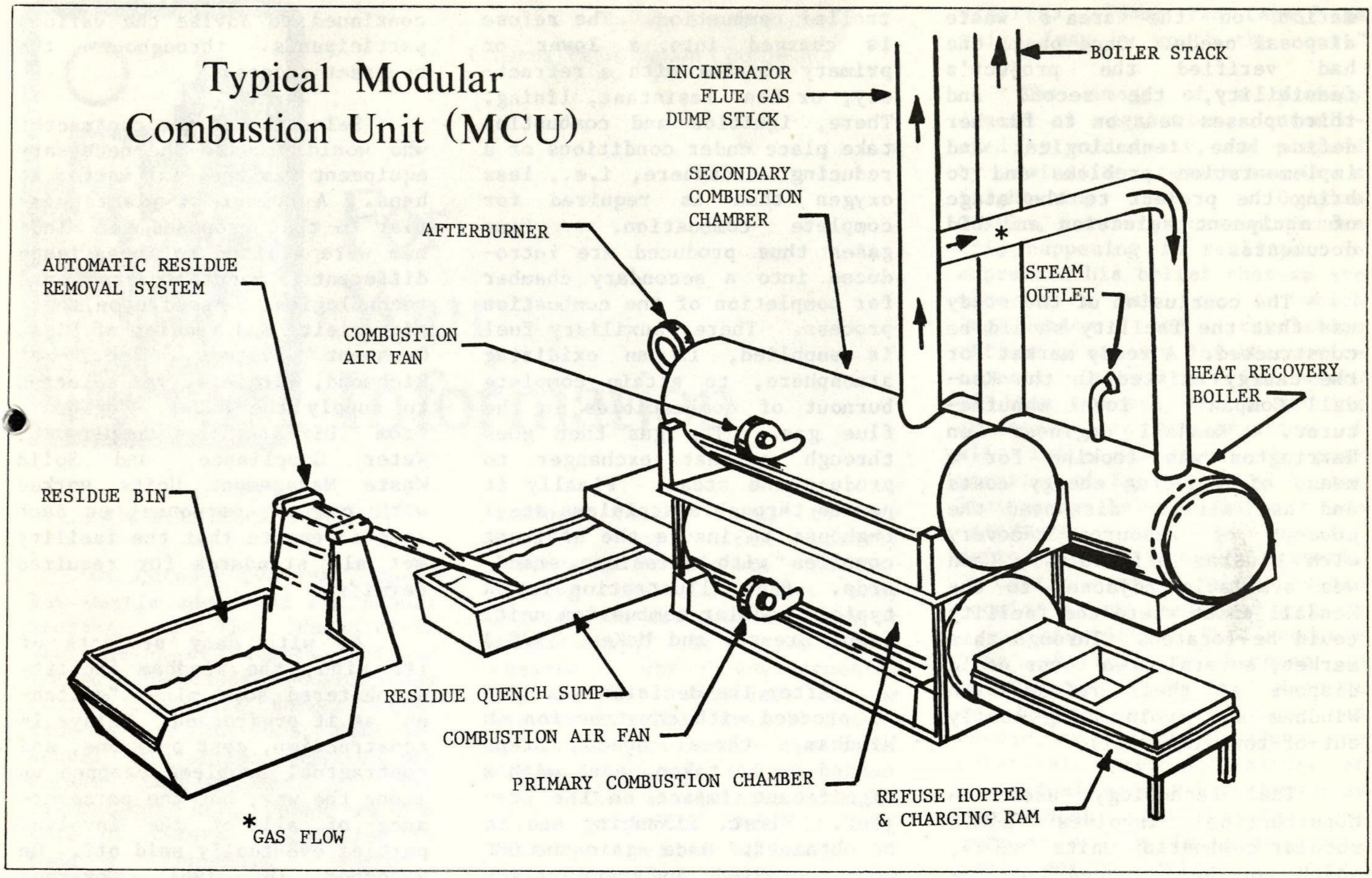
When the decision was made to close the old landfill, the search for alternatives immediately began. The first option that was explored was locating a new disposal area in the town. One application for a permit was filed with the DEP, but local opposition and questions regarding the physical suitability of the site led to its denial. Another possibility was transferring the waste to a private landfill. While this disposal method was used as an interim solution, the prospect of escalating tipping fees made it unattractive as a long-range solution.

At this point Raymond Smith stepped in. Smith, a professor of Geology at Eastern Connecticut State College, was interested in the possibility of constructing a resource recovery facility. This idea was not a novelty in Connecticut; the Connecticut Resources Recovery Authority was already well into construction of the Bridgeport plant by this time. What was envisioned for Windham, however, was a small, simple facility which employed proven technology and which, above all, could be afforded by a small town.

Once the officials of the Town of Windham had decided to pursue the idea of an energy recovery facility, they approached DEP Commissioner Stanley J. Pac for financial and technical assistance. Pac enthusiastically encouraged the plan and pledged his full support. The Solid Waste Management Unit was particularly interested in the potential of the plant, and a $60,000 grant was awarded by the Unit to the consulting firm of Camp, Dresser and McKee to prepare a three phase study of the project.

The first phase examined the feasibility, both technological and economic, of the system. Of great importance to the DEP was the possibility of having several municipalities participate in the project. While Windham had originally made the proposal to solve its own problem, many towns in the region faced the same problems. The Windham Regional Planning Agency provided valuable infor-

## Typical Modular Combustion Unit (MCU)


BOILER STACK
INCINERATOR FLUE GAS DUMP STICK
SECONDARY COMBUSTION CHAMBER
AFTERBURNER
AUTOMATIC RESIDUE REMOVAL SYSTEM
STEAM OUTLET
*
COMBUSTION AIR FAN
HEAT RECOVERY BOILER
RESIDUE BIN
RESIDUE QUENCH SUMP
COMBUSTION AIR FAN
PRIMARY COMBUSTION CHAMBER
REFUSE HOPPER & CHARGING RAM
* GAS FLOW

*Waste, at right, is ready to be charged into a modular combustion unit. Heat from burning refuse is used to produce steam used in the manufacturing process at nearby Kendall Company.*

mation on the area's waste disposal needs. Once phase one had verified the project's feasibility, the second and third phases went on to further define the technological and implementation problems and to bring the project to the stage of equipment selection and bid documents.

The conclusion of the study was that the facility should be constructed. A ready market for the energy existed in the Kendall Company, a local manufacturer. Kendall engineer Len Harrington was looking for a means of reducing energy costs and had already discussed the concept of resource recovery with Windham officials. Land was available adjacent to the Kendall plant where the facility could be located. Through this market, several area towns could dispose of their refuse with Windham and avoid using costly out-of-town landfills.

The technology used in construction involves small modular combustion units (MCUs), which can be "plugged into" a system as tonnage is determined. Some incineration plants operating today have several such units to handle daily refuse disposal. These plants have an advantage in their ability to expand capacity, when and if refuse generation increases, by the addition of modules. Allocating the daily refuse load to several small units rather than one large one also provides for a reliable backup system when incineration equipment is out of service for repair or maintenance.

A second characteristic of these units is that they are generally shop-fabricated and shipped to the site for installation. This feature carries the economic benefits of standardized design and relative simplicitity of shipment and installation. Heat recovery boilers, which generate steam from the hot flue gases, are available to serve each incinerator module or a number of modules.

Another distinguishing feature of these units is controlled combustion. The refuse is charged into a lower or primary chamber with a refractory, or heat resistant, lining. There, ignition and combustion take place under conditions of a reducing atmosphere, i.e., less oxygen than is required for complete combustion. Flue gases thus produced are introduced into a secondary chamber for completion of the combustion process. There, auxiliary fuel is supplied, in an oxidizing atmosphere, to attain complete burnout of combustibles in the flue gas. The gas then goes through a heat exchanger to produce the steam. Finally it passes through a stainless steel baghouse to insure the effluent complies with emissions standards. (See illustration for a typical modular combustion unit: Camp, Dresser and McKee, 1979.)

After the decision was made to proceed with construction in Windham, three other steps needed to be taken, each with a significant impact on the project. First, financing had to be obtained. Once again the DEP was contacted and application was made for a solid waste grant-in-aid. Under C.G.S. Section 19-52 (a) and (b), a municipality is eligible for up to 70 percent of the total cost of the planning, design, and construction of a volume reduction facility, depending on how many other towns are involved. Because at least five towns had submitted resolutions of interest and because DEP was eager to demonstrate that this type of project was feasible, Windham was awarded 70 percent of the estimated cost of $3,530,000, which amounted to $2,471,000. A low-interest loan was obtained from the Farmer's Home Administration to cover the remainder of the cost.

Another important step was the drafting of intermunicipal contracts between Windham and all of the "user" towns. It is often difficult for a municipality to commit itself to a contract agreement for 20 years, but the towns of Ashford, Union, and Bolton quickly contracted to use the facility. Franklin, Eastford, and Tolland soon followed. DEP staff members continued to advise the various participants throughout the contract process.

Selection of the contractor who would provide the necessary equipment was the next matter at hand. A number of plants similar to that proposed for Windham were visited to investigate different manufacturers and technologies. Based upon these site visits and receipt of bids, Consumat Systems, Inc., of Richmond, Virginia, was selected to supply the MCUs. Engineers from DEP's Air Compliance, Water Compliance, and Solid Waste Management Units worked with project personnel on each step to ensure that the facility met all standards for required permits.

As with many projects of its kind, the Windham facility encountered some minor "glitches" as it progressed. Delays in construction, cost overruns, and contractual problems cropped up along the way, but the perseverance of all of the involved parties eventually paid off. On November 16, 1981, Governor William O'Neill cut the ribbon officially opening the plant. That week the facility was processing 70 tons per day (TPD) of municipal solid waste, and it was expected that within several weeks it would be processing the 108 TPD it is designed to handle at maximum capacity. The generated steam saves Kendall 19,000 gallons of oil a week, which equals about 22,600 barrels of oil each year. That's enough to heat 850 homes this winter.

The Windham Energy Recovery Facility is the offspring of a unique marriage of concerned citizens, municipal officials, regional planners, state government, and private industry. It stands as proof that, when the kinds of groups mentioned above work together, problems can be solved in innovative ways. To obtain more detailed information on the Windham project or for technical assistance on projects of this kind, contact Charles Atkins, Principal Sanitary Engineer, Solid Waste Management Unit, DEP, 165 Capitol Avenue, Hartford, CT 06115; (203) 566-5847. ■

# For Your Information

By Leslie Bieber,
Citizens' Participation Coordinator

## Costle addresses CACIWC

On October 29, 1981, Douglas Costle addressed the annual meeting of the Connecticut Association of Conservation and Inland Wetlands Commissions (CACIWC). Costle, former Administrator of the U.S. Environmental Protection Agency and former Commissioner of the Connecticut DEP, spoke on the role of federal regulation in today's changing society, especially in the environmental area.

Characterizing the 70s as a decade of rapid change, Costle explained that the dramatic increase in regulation was caused by many interlocking events. The postwar chemical boom, for instance, produced synthetic substances such as thalidomide, DES, DDT, and PCB whose effects on man and the environment could not have been foreseen. Prior to 1940, chemical compounds were derived from naturally occurring materials which had been subjected to years of human trial and error; the toxic properties of lead and mercury have long been known. Today over five million chemical compounds exist, many man-made, of which 45,000 are legally distributed. Testing to determine health effects of a new substance can cost well over $500,000 and can take two years.

In Costle's opinion, regulation is "a hasty effort to improvise, often in the face of government ambiguity, protection against forces novel to our history and often utterly strange to our planet." Acknowledging the fact that many regulations are contradictory or unnecessary, he gave four reasons why environmental legislation continues to be important. They are: 1) Growth in human population--the total number of people did not reach one billion until 1830; by 1990, it is projected that it will increase to five billion. 2) Technological changes have magnified the scope of our tools. 3) There are an extremely high number of synthetic substances being produced. 4) The pace of change in the environment is accelerated because of the synergetic (combined) effect of pollutants. Only one law, however, recognizes the interaction of these four factors--the National Environmental Policy Act of 1969. In all other cases, regulations have been drafted in a piecemeal manner, addressing one specific area of concern.

It is obvious that the trend toward de-regulating society has many supporters, especially given today's move toward tightening the federal purse strings. Costle reflected that "out of a misguided sense of thrift, we might save ourselves broke." Citing Love Canal as one example, the former EPA official pointed out instances where one million dollars worth of prevention before the fact would have saved the federal and state governments and taxpayers the many millions spent in later clean-up efforts. "Some red tape," he said, "may be worth the cost."

The image of a society devoid of regulation, contaminated by pollutants, and plagued by dwindling resources is a frightening one. Douglas Costle, however, does not forsee this happening in reality. He expressed his belief that we are entering a new era, in which legislation and regulation reflect a concern for the environment. Several key indicators of this concern are a growing commitment to conservation of all finite resources, the preparation of Environmental Impact Statements before projects are undertaken, and a changing definition of economic growth. In Costle's words, Americans are "coming to see waste and excess ...as stupidity. This recognition of scarcity becomes an intellectual resource. Many of us have been concerned and become more concerned about the unnatural speed and nature of ecological change brought on by man. Some still see this concern as a fad; in my judgment, they doom themselves to obsolescence. But I think enough of us have begun acting on that concern to shape the future more to our will. We must make sure that succeeding generations will become the inheritors of change, not its victims." ■

## Insurance for land trusts

The Land Trust Service Bureau now provides a low-cost comprehensive group insurance program for land trusts. Previously these organizations were paying extremely high rates for coverage or were going without liability insurance. The Service Bureau has worked with the Nature Conservancy's national office to establish this program. Connecticut is currently serving as a pilot program; however, the Conservancy hopes eventually to offer the program to qualifying local conservation organizations nationwide. For further information contact Suzanne Wilkins, Director, Connecticut Land Trust Service Bureau, P.O. Box MMM, Wesleyan Station, Middletown, CT 06457, (203) 344-9867. ■

# Congress ready for battle over Clean Air Act

*By Robin W. Bray, Public Participation Coordinator, DEP Air Compliance Unit*

Is clean air an ideal we cannot hope to achieve? The next few months may very well decide this issue for us. This is the 10th year of air pollution control regulation under the Clean Air Act. This is also the year of the Act's reauthorization; a year in which many of the accomplishments in air pollution control may be abandoned in the name of deregulation and a strong economy. In amending the Clean Air Act of 1970 the Congress is faced with a formidable task, and already the battle lines are drawn. Conservative Republicans and business groups generally support a weakened version of the Act, one which they hope would cut excess regulation and red tape and in essence "give industry a break," while liberal Republicans and most Democrats, especially those representing Northeastern states, favor fine tuning the current version of the Act and adding provisions for strengthening controls designed to deal with interstate air pollution problems.

There is also growing concern among the latter groups over acid rain deposition (see "Citizens' Bulletin," March 1980). Acid precipitation is the result of pollutants from industrial and utility smoke stacks and from motor vehicles, pollutants such as sulfur and nitrogen oxides, combining with moisture in the atmosphere to form dilute acids which eventually fall to the ground during periods of rain and snow. These acid aerosols travel great distances in upper air currents causing problems on a regional scale. Among other effects, researchers find that acid rain can kill aquatic organisms, erode structures, injure foliage, and decrease crop yields. Those groups favoring fine tuning the Clean Air Act would like to see additions made to address the issue.

## Opinions

Between May 6th and 10th, the Harris Survey asked a cross section of 1,250 persons nationwide by telephone:

"Do you think that federal air pollution standards are overly protective of people's health, not protective enough, or just about right?"

AIR POLLUTION STANDARDS TOO PROTECTIVE OF PEOPLE'S HEALTH?

| | |
|---|---|
| Overly protective | 18% |
| Not protective enough | 40 |
| Just about right | 38 |
| Not sure | 4 |

"This year Congress will reconsider the Clean Air Act, which is now ten years old. Given the costs involved in cleaning up the environment, do you think Congress should make the Clean Air Act stricter than it is now, keep it about the same, or make it less strict?"

CONGRESS MAKE THE CLEAN AIR ACT STRICTER?

Total nationwide

| | |
|---|---|
| Make stricter | 38% |
| Keep about the same | 48 |
| Make less strict | 12 |
| Not sure | 2 |

If members of Congress listen to their constituents, they may hear some familiar voices. A strong concern for the environment, such as was seen during the environmental movement of the 1960s, has become evident. Though the voices may not be as loud nor as radical, they are nevertheless not to be underestimated. The public is better informed on environmental issues today than ever before, and it is very likely that Congressional actions on the Clean Air Act will be a consideration in voters' minds come the 1982 elections.

Where is the evidence of this growing environmental concern? A recent Harris Survey indicates that a substantial majority of those polled supports the Clean Air Act in its present form and a large group supports further strengthening of the Act.

When asked what they think Congress should do in reconsidering the Clean Air Act, only 12 percent of those polled felt that the Act should be weakened, with an overwhelming 86 percent either expressing support of the Act as is or supporting a strengthening of the Act. When asked if air pollution standards are too protective of people's health, only 18 percent felt the Act to be overly protective, again with an overwhelming percentage, 78 percent, saying that the standards are fine in the present form or are not protective enough. Even those who doubt the accuracy of public opinion polls cannot explain away this strong concern for protecting the public health and the environment. Lou Harris said of the results, "This message of the deep desire on the part of the American people to battle pollution is one of the most overwhelming and clearest we have ever recorded in our 25 years of surveying public opinion." In addition, Harris observed, ". . . not a single major segment of the

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# Connecticut begins breeding bird atlas

## Atlas will upgrade ornithological data

*By Thomas Hoehn, DEP Wildlife Biologist*

With growing numbers of Connecticut residents developing an interest in bird watching, various ways of pursuing this avocation have become popular. Bird watching or "birding," as it is called today, occupies persons with many levels of interest and experience, ranging from professionals monitoring groups of birds for wildlife management purposes to those who simply enjoy noting the presence of colorful birds. Connecticut's newest and most comprehensive bird watching endeavor, a breeding bird atlas project, will begin in January 1982.

To evaluate the effects of urbanization, industry, agriculture, or wildlife management itself, bird records are used as a measure of environmental conditions. Consultants working on environmental impact statements, for example, frequently ask for lists of resident wildlife species that might be impacted by development or other regulated activity at a specific site. Too often records for birds breeding in a specific geographic area are only partial lists and incidental observations.

Thanks to the efforts of a group of avid birding enthusiasts in Connecticut, birders will have the opportunity to contribute to permanent environmental records and enjoy their avocation at the same time via the bird atlasing project. Breeding bird atlasing in Connecticut is identifying the breeding birds found in each of the 540 areas designated by a mapping system. Atlasing provides an opportunity for all birders to learn more about natural history, expand their knowledge of birds in general, and contribute to ornithological records. There will be a series of slide presentations given for the purpose of training the atlasing participants.

The Wildlife Unit of the Department of Environmental Protection congratulates the Connecticut Breeding Bird Atlasing committee for their efforts and pledges as much help as possible. We endorse the project strongly and encourage all birders to participate. Several of the Wildlife Unit's staff will be contributing personal time to the atlasing project for the same reasons other birders will. ■

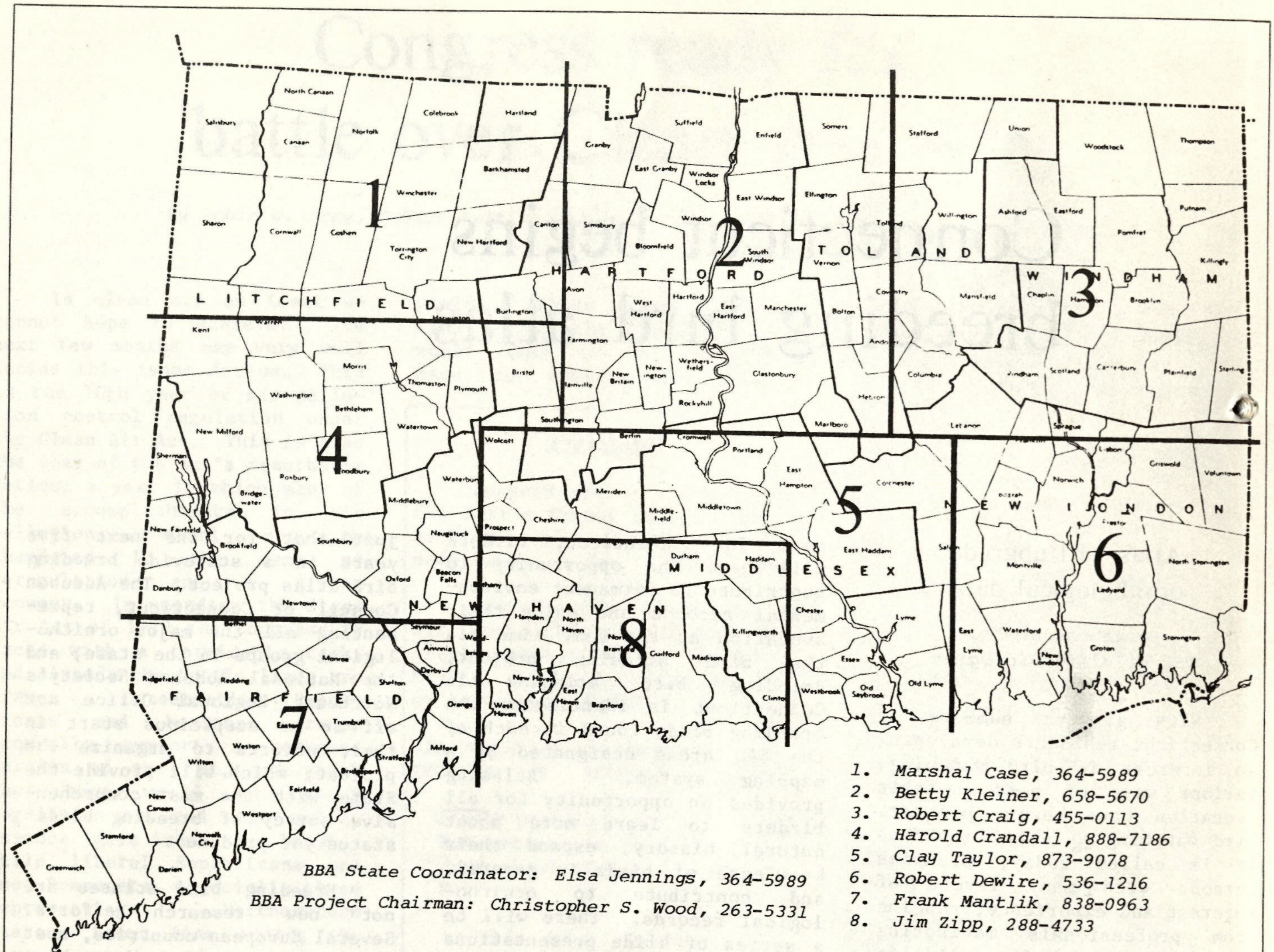
## Volunteers tackle survey statewide

*By Christopher S. Wood*

One of the definitions of the word auspice is "a watching for omens in the flights of birds." Connecticut birders and ornithologists will be doing just that for the next five years in a statewide breeding bird atlas project. The Audubon Council of Connecticut, representing all the major ornithological groups in the state, and the National Audubon Society's Northeast Regional Office are off to an auspicious start in their efforts to organize the project, which will provide the State with the most comprehensive survey of breeding birds' status yet produced.

Breeding bird atlases are not new research efforts. Several European countries, most notably Great Britain, have conducted and published the results of such surveys, and many states in the northeast region of this country are in one stage or another of atlas projects. An atlasing conference was held recently by the Vermont Institute of Natural Science, bringing together many American and Canadian atlasers and such experts as Chandler Robbins of the U.S. Fish and Wildlife Service. The conference was particularly helpful to the Connecticut project. The project is in such an early stage that research design could be easily amended to conform to the scientifically useful standardization that the conference encouraged, and it was able to take advantage of the experience of states further along with their projects.

The Audubon Council has established a Breeding Bird



*BBA State Coordinator: Elsa Jennings, 364-5989*

*BBA Project Chairman: Christopher S. Wood, 263-5331*

1. *Marshal Case, 364-5989*
2. *Betty Kleiner, 658-5670*
3. *Robert Craig, 455-0113*
4. *Harold Crandall, 888-7186*
5. *Clay Taylor, 873-9078*
6. *Robert Dewire, 536-1216*
7. *Frank Mantlik, 838-0963*
8. *Jim Zipp, 288-4733*

Atlas Committee (BBA) which has defined the project's goals and outlined the action plans necessary to acomplish them. In concise form, bird atlasing in Connecticut is the dividing of our state into small, manageable squares (approximately nine square miles each) and then identifying the breeding species in each square. The atlasing system adopted provides uniform coverage of the state over a five year period.

The first goal is to produce maps delineating distribution and status of the nearly 200 possible breeders in the State, ranging from common loon to song sparrow. As with the European and other Northern American efforts, this entails research by a large contingent of volunteers, assigned to specific territories via a regional coordinator system, who will record the occurence and breeding status in each block of the statewide grid.

The grid is based on topographic maps, and each block consists of one-sixth of a seven and one-half minute quadrangle, very near the five kilometer square that metric based atlases have adopted. Breeding status is recorded in one of three categories--possible, probable, or confirmed--each of which has two or more subcategories on a hierarchical scale of breeding likelihood. This information will be computerized, facilitating statistical and ecological comparisons with existing data and environmental conditions.

The project's second goal is to expand our knowledge of breeding birds in Connecticut by incorporating density information into the surveys. These quantitative studies will cover only a randomly selected set of quadrangles. The results will be applied to the distribution data, statewide habitat types, and other ornithological statistics to allow development of several ecological hypotheses and provide evidence in support of the project's third goal.

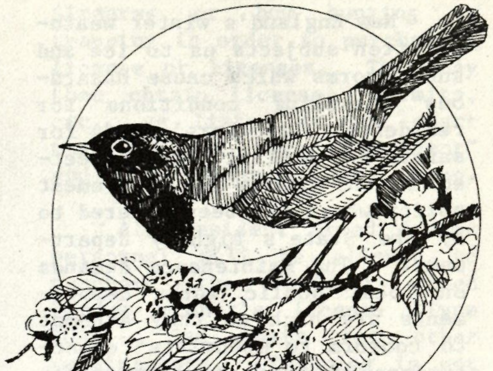
The third goal is to make practical use of the project by applying the results to some of the pressing environmental problems threatening birds and other wildlife species in Connecticut. Forest fragmentation, habitat succession, environmental contaminants in food

Robin feeding young: Leonard Lee Rue III photo

chains, and outright habitat destruction are some of the major problems that this type of information might help to mitigate in the years to come. While present State wildlife policies undoubtedly benefit all species, it is evident that more specific attention is needed for many bird species that are not monitored. The principal action under this third project goal will be to use the information acquired to promote wildlife considerations in Connecticut that will benefit all indigenous species. Support for this goal is growing, and the project will cooperate with other groups who share the strong interest that is illustrated by the enthusiastic response to the atlas project.

Elsa Jennings, of the National Audubon Society's Northeast office, is the State coordinator and is preparing the instructional materials, field cards, computer data sheets, and miscellaneous information for field personnel and regional coordinators. A working group from the BBA committee is preparing an audiovisual presentation that will explain the project and provide educational tips on finding and confirming breeding birds, while minimizing the potential disruption that careless research could cause. The regional coordinators for each of the areas delineated are listed below. Contact the coordinator in your area or Elsa Jennings if you are interested in doing some birding for the atlas, starting with the 1982 breeding season.

The project has several factors working in its favor. We have the benefit of a large body of experience in such research. We enjoy an ornithological and ecological diversity unique for a state this size, and we are fortunate to be home to not only several "world class" birders but also to perhaps the highest concentration of qualified and active birders of any state. There is no refuting that the State faces many difficult environmental management problems, most if not all of which directly affect the quantity and quality of habitat for wildlife. It is in the State's best interest to protect and manage wisely its natural resources, and the breeding bird atlas project will help provide information and encouragement to promote this. ■



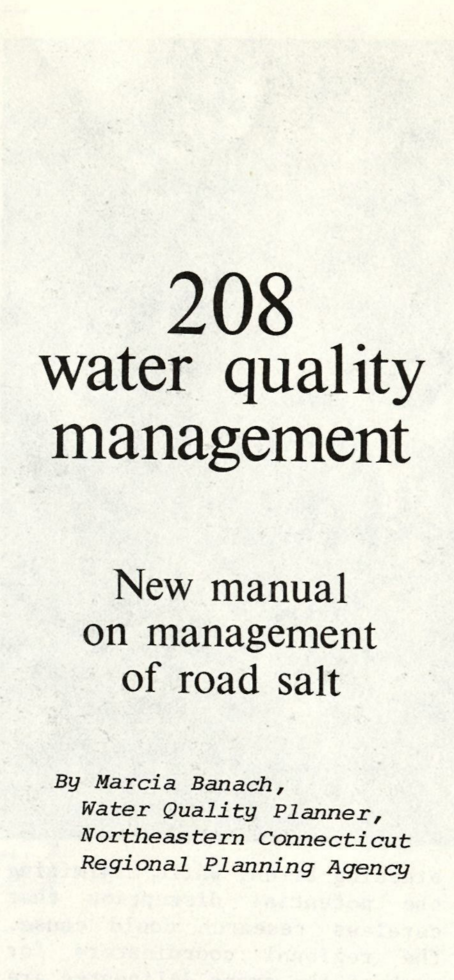
## New journal of ornithology

Covering subjects ranging from an overview of bird species indicative of rises, falls, and cycles in population during the 1970s to the history of the Canada goose in Connecticut, "The Connecticut Warbler" is the first field journal of ornithology offered in the state.

Published quarterly by the Natural History Services Department of the Connecticut Audubon Society, the "Warbler" is devoted to the advancement of the study of birds and their conservation in Connecticut. The publication includes, in addition to articles by reowned ornithologists like Dr. Noble Proctor, items of interest to birders, such as the First Annual Connecticut Bird Conference held last May and the bird-banding station at the Birdcraft Museum and Sanctuary.

The journal is available from the Natural History Services Department at 314 Unquowa Road, Fairfield, CT 06430. It costs $1.50 per issue or $6 for a yearly subscription of four issues.

If your birding buddies aren't yet subscribers, why not present them with a gift subscription as a New Year's present. The "Connecticut Warbler" would make a perfect holiday gift for that someone who is interestd in birds or wants to increase his knowledge about the birds in Connecticut. During the holidays, the "Warbler" is offering a special bonus. For $10.50, they will start a gift subscription for 1982 and include the back issues for 1981. ■



# 208 water quality management

## New manual on management of road salt

*By Marcia Banach,*
*Water Quality Planner,*
*Northeastern Connecticut*
*Regional Planning Agency*

New England's winter weather often subjects us to ice and snow storms which cause hazardous traveling conditions for residents. Travelers' needs for safety and mobility are reflected in the nearly bare pavement policy which has been adhered to by the State's highway department. The maintenance demands on local public works departments are high as they attempt to conform to motorists' expectations of clear roads wherever they travel. Sodium chloride (common salt) has been the major de-icing material because of its low cost and high effectiveness. However, in recent years much attention has been focused on environmental problems associated with road salt storage and application. The principal concern is the effect of the road salt on drinking water quality. The primary hazard of salt in drinking water is that the ingestion of high concentrations of salt correlate with hypertension and heart disease.

The majority of Connecticut towns have not experienced water quality problems which can be attributed to road salt storage or application procedures. However, effects of local salt storage practices which have not yet affected water supplies could become evident in future years. Several towns in Connecticut have discovered that when the effects of road salt appear in water supply wells, it is too late to remedy the situation; new, often costly water supplies must be provided. The principal cause of water supply contamination from road salt appears to be lack of knowledge regarding which storage procedures are environmentally unsound.

The key point, then, is that prevention of water contamination by local road salt is certainly prudent and can prove to be very economical in the long run. Also, the costs of improvements in salt storage and handling procedures may be offset by savings realized by the improvements. Ordinary road salt is extremely water soluble. Therefore, inadequate storage facilities may be costly to the municipality because salt dissolves and washes away in rain storms or snow melt. Over-application of road salt is also costly.

The Northeast, Southeast, and Windham regional planning agencies came to the above conclusions through a year-long assessment of the effects of road salt storage and application procedures in Eastern Connecticut. The project, funded by the Environmental Protection Agency through the Connecticut 208 program, had as its main objective the development of a comprehensive guide which Connecticut towns could use to determine if their road salt storage procedures are acceptable. The manual was also to contain recommended storage and application procedures.

Such a manual has now been completed and has been distributed to all regional planning agencies. "A Recommended Program to Minimize Water Supply Contamination Caused by Local Road Salt Storage, Application and Other Management Procedures in Connecticut Towns," has also been distributed to the chief executive officer in every municipality in Connecticut.

The manual discusses the three most undesirable storage procedures: storage in unenclosed facilities; storage of a sand/salt mix pile on bare earth; and storage of a sand-salt mix pile with no covering. Detailed corrective recommendations are provided for all three situations. Also, many auxiliary procedures for preventing road salt contamination of water supplies are presented. Such procedures include calibrating spreading trucks, which can reduce the amounts of sand and salt used during storms, and cleaning up spills of salt as well as cleaning trucks after each storm.

The manual has been endorsed by the Department of Environmental Protection and encompasses input from other agencies, including the Connecticut Department of Transportation, the Department of Health Services, and the U.S. Geological Survey. Representatives of several municipal public works departments also provided suggestions.

It is in the best interest of all municipalities in Connecticut to ensure that their road salt storage and application procedures do not constitute a danger to water supplies. Using the manual can help to accomplish this goal. ■

*The Connecticut 208 Water Quality Management Program can now be reached:*

*c/o DEP Water Compliance Unit*
*122 Washington Street*
*Hartford, CT 06115*
*Phone: 566-2860*

*Contact: Carmine DiBattista,*
*Administrator,*
*or John Cimochowski,*
*Water Quality Planner*

# First, you hunt up the proper license . . .

## Requirements for purchasing hunting and trapping licenses in Connecticut for 1982

### General

To purchase your 1982 hunting and trapping license you must present to the town clerk or the agent a valid license less than five years old or Certificates of Competency in firearms, bow hunting, or trapping appropriate to the portion of the hunting and/or trapping license desired. If a person does not have the required license but has a Certificate of Competency from another state, province, or country having a program at least comparable to Connecticut's Conservation Education/-Firearms Safety Program, he or she may now request in writing or in person a Certificate of Competency from the Coordinator of Conservation Education - Firearms Safety, Wildlife Unit, Department of Environmental Protection.

No person can hunt or assist in hunting without a hunting license except for persons between 12 and 16 years old who can hunt in company with licensed hunters if they possess Certificates of Competency.

### Resident

All resident first-time license buyers and all residents who have not had a license in five or more years must produce a Certificate of Competency in firearms or bow hunting or trapping in order to purchase a license or licenses. They may then obtain licenses, permits, etc., as listed in the chart that follows under "Resident" and the correct age group.

All resident armed forces personnel will be allowed to purchase the resident armed forces member's license (Type 10). See chart for other requirements. Trapping is not included.

### Non-resident

All non-resident armed forces members may purchase a resident license (Type 1 or 3). They may also need other permits, etc., as listed for residents in their correct age group.

All other non-residents are required to purchase a non-resident license (Type 2 & 4) and acquire all permits, etc., that a resident is required to possess. Non-residents may not trap in Connecticut.

If the non-resident does not have a valid, not-older-than- five- years- old- license, then the non-resident must produce a Connecticut Certificate of Competency. He may, in writing or in person, request a Connecticut Certificate of Competency from the Coordinator of Conservation Education/ Firearms Safety, Wildlife Unit, Department of Environmental Protection, if he has a Certificate of Competency from another state, province, or country that has a program equal to Connecticut's.

*IF YOU WANT TO HUNT, YOU MUST SATISFY ONE OF THE LICENSE REQUIREMENTS. YOU MAY ALSO NEED TO ACQUIRE WRITTEN PERMISSION AND/OR A PERMIT. THE HUNTING TOOLS ALLOWED FOR YOUR DESIRED GAME ARE ALSO LISTED. ALL NEW BOW HUNTERS (WHO HAVE NOT HAD A COMBINATION LICENSE IN THE LAST FIVE YEARS) MUST OBTAIN A CERTIFICATE OF COMPENTENCY IN BOW HUNTING. A SEPARATE SECTION IS PROVIDED FOR LANDOWNERS HUNTING ON THEIR LAND.*

Leonard Lee Rue III photo

| RESIDENT OR NON-RESIDENT:<br>16 Years or Older | SMALL GAME HUNTING | | | | GUN HUNTING DEER | | | | GUN HUNTING TURKEY | | | | TRAPPING | | | | MUZZLELOADER SMALL GAME | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | State Owned | State Leased | Permit Req. | Private | State Owned | State Leased | Permit Req. | Private | State Owned | State Leased | Permit Req. | Private | State Owned | State Leased | Permit Req | Private | State Owned | State Leased | Permit Req. | Private |
| LICENSES | | | | | | | | | | | | | | | | | | | | |
| Type 1 & 3 *Resident* *Hunting, Trapping & Fishing* | | | | | | | | | | | | | | | | | | | | |
| Valid: a)Firearms | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | | | | | | ● | ● | ● |
| b)Bow | | | | | | | | | | | | | | | | | | | | |
| c)Trapping | | | | | | | | | | | | | ● | ● | ● | ● | | | | |
| d)Firearms & Bow | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | | | | | | ● | ● | ● |
| e)Firearms,Bow & Trapping | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | | ● | ● | ● |
| f)Bow & Trapping | | | | | | | | | | | | | ● | ● | ● | ● | | | | |
| g)Firearms & Trapping | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | | ● | ● | ● |
| Type 2 & 4 *Non-Resident* *Hunting, Fishing* | | | | | | | | | | | | | | | | | | | | |
| Valid: h)Firearms | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | | | | | | ● | ● | ● |
| i)Bow | | | | | | | | | | | | | | | | | | | | |
| j)Firearms & Bow | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | | | | | | ● | ● | ● |
| 8. *Jr. Trapping* | | | | | | | | | | | | | | | | | | | | |
| 10. *Armed Forces Member-Resident* | | | | | | | | | | | | | | | | | | | | |
| Valid: l)Firearms | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | | | | | | ● | ● | ● |
| m)Bow | | | | | | | | | | | | | | | | | | | | |
| n)Firearms & Bow | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | | | | | | ● | ● | ● |
| *Lifetime License to Hunt & Fish* | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | | ● | ● | ● |
| *Free Landowner Permit* Lineal Descendants | | | | | | | | | | | | | | | | | | | | |
| PERMISSION | | | | | | | | | | | | | | | | | | | | |
| Written Permission | | | | A | | | | | | | | | | ● | ● | ● | | 5 | 5 | A |
| Validated Consent Forms | | | | | | I | I | ● | | ● | ● | ● | | | | | | | | |
| HUNTING EQUIPMENT | | | | | | | | | | | | | | | | | | | | |
| .22 Rimfire L.R.-Rifle | ● | | | ● | | | | | | | | | G | | | ● | | | | |
| Pistol requires pistol permit | ● | ● | ● | ● | | | | | | | | | G | ● | ● | ● | | | | |
| Shotgun | 2 | 2 | 2 | ● | 3 | 3 | 3 | 3 | 4 | 4 | 4 | 4 | | | | | | | | |
| Rifle 6mm or larger | | | | ● | | ● | ● | ● | | | | | | | | | | | | |
| Bow & Arrow (7) | ● | ● | ● | ● | | | | | ● | ● | ● | ● | | | | | | | | |
| Muzzleloading Rifle or Shotgun 9 | | | | | | | | | | | | | | | | | | 8 | 8 | ● |
| Muzzleloader larger than 45 Cal.9 | | | | | | | | | | | | | | | | | | | | |
| PERMITS | | | | | | | | | | | | | | | | | | | | |
| Daily | | | ● | | | | | | | | | | | | | | | | | |
| Seasonal | | | ● | | | | | | | | | | | | | | | | | |
| State Land Shotgun Deer | | | | | ● | | | | | | | | | | | | | | | |
| Private Owned Shotgun and/or Rifle Deer | | | | | | ● | ● | ● | | | | | | | | | | | | |
| State Owned Turkey (Gun or Bow) | | | | | | | | | ● | | | | | | | | | | | |
| Private Owned Turkey (Gun or Bow) | | | | | | | | | | ● | ● | ● | | | | | | | | |
| State Owned Muzzleloader Deer | | | | | | | | | | | | | | | | | | | | |
| Private Owned Muzzleloader Deer | | | | | | | | | | | | | | | | | | | | |
| State or Private Archery Deer | | | | | | | | | | | | | | | | | | | | |
| BIDS | | | | | | | | | | | | | | | | | | | | |
| 4 yr. Trapper Bids (1982) | | | | | | | | | | | | | ● | ● | | | | | | |
| NOT ALLOWED | | | | | | | | | | | | | | | | | ● | | | |
| CERTIFICATES OF COMPETENCY | | | | | | | | | | | | | | | | | | | | |
| Firearms | | | | | | | | | | | | | | | | | | | | |
| Bow Hunting | | | | | | | | | | | | | | | | | | | | |
| Trapping | | | | | | | | | | | | | ● | | | | | | | |

| MUZZLELOADER DEER | | | | MUZZLELOADER TURKEY | | | | ARCHERY Small Game | | | | ARCHERY DEER | | | | ARCHERY TURKEY | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| State Owned | State Leased | Permit Req. | Private | State Owned | State Leased | Permit Req. | Private | State Owned | State Leased | Permit Req. | Private | State Owned | State Leased | Permit Req. | Private | State Owned | State Leased | Permit Req. | Private |
| ● | ● | ● | ● | | | | | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| ● | ● | ● | ● | | | | | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| ● | ● | ● | ● | | | | | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| ● | ● | ● | ● | | | | | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| ● | ● | ● | ● | | | | | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| ● | ● | ● | ● | | | | | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| ● | ● | ● | ● | | | | | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| ● | ● | ● | ● | | | | | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| ● | ● | ● | ● | | | | | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| | | | | | | | | | | | A | | ● | ● | ● | | | | |
| | ● | ● | ● | | | | | | | | | | | | | | ● | ● | ● |
| | | | | | | | | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| ● | ● | ● | ● | | | | | | | | | | | | | | | | |
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| ● | | | | | | | | | | | | | | | | | | | |
| | ● | ● | ● | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | ● | ● | ● | ● | | | | |
| | | | | ● | ● | ● | ● | | | | | | | | | | | | |

| 12 to 16 yrs.<br>Must have adult<br>over 18 w/them. | GUN SMALL GAME | State Owned | State Leased | Permit Req. | Private | GUN DEER | All Land | GUN TURKEY | All Land | TRAPPING | State Owned | State Leased | Permit Req. | Private | BOWHUNTING | All Lands Turkey,Deer | Small Game | LESS THAN 12 Years | All Hunting | Trapping |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LICENSES | | | | | | | | | | | | | | | | | | | | |
| Type 1 & 3 *Resident* *Hunting, Trapping & Fishing* | | | | | | | | | | | | | | | | | | | | |
| Valid: a)Firearms | | | | | | | | | | | | | | | | | | | | |
| b)Bow | | | | | | | | | | | | | | | | | | | | |
| c)Trapping | | | | | | | | | | | | | | | | | | | | |
| d)Firearms & Bow | | | | | | | | | | | | | | | | | | | | |
| e)Firearms,Bow & Trapping | | | | | | | | | | | | | | | | | | | | |
| f)Bow & Trapping | | | | | | | | | | | | | | | | | | | | |
| g)Firearms & Trapping | | | | | | | | | | | | | | | | | | | | |
| Type 2 & 4 *Non-Resident* *Hunting, Fishing* | | | | | | | | | | | | | | | | | | | | |
| Valid: h)Firearms | | | | | | | | | | | | | | | | | | | | |
| i)Bow | | | | | | | | | | | | | | | | | | | | |
| j)Firearms & Bow | | | | | | | | | | | | | | | | | | | | |
| 8. *Jr. Trapping* | | | | | | | | | | | B | ● | ● | ● | | | | | | B ● |
| 10. *Armed Forces Member-Resident* | | | | | | | | | | | | | | | | | | | | |
| Valid: l)Firearms | | | | | | | | | | | | | | | | | | | | |
| m)Bow | | | | | | | | | | | | | | | | | | | | |
| n)Firearms & Bow | | | | | | | | | | | | | | | | | | | | |
| *Lifetime License to Hunt & Fish* | | | | | | | | | | | | | | | | | | | | |
| *Free Landowner Permit* | | | | | | | | | | | | | | | | | | | | |
| Lineal Descendants | | | | | | | | | | | | | | | | | | | | |
| PERMISSION | | | | | | | | | | | | | | | | | | | | |
| Written Permission | | | | | A | | | | | | | ● | ● | ● | | | ● | | | ● |
| Validated Consent Forms | | | | | | | | | | | | | | | | | | | | |
| HUNTING EQUIPMENT | | | | | | | | | | | | | | | | | | | | |
| .22 Rimfire L.R.-Rifle | | ● | | | ● | | | | | | ● | | | ● | | | | | | |
| Pistol requires pistol permit | | | | | | | | | | | | | | | | | | | | |
| Shotgun | | ● | ● | ● | ● | | | | | | ● | ● | ● | ● | | | | | | |
| Rifle 6mm or larger | | | | | | | | | | | | | | | | | | | | |
| Bow & Arrow (7) | | | | | | | | | | | | | | | | | ● | | | |
| Muzzleloading Rifle or Shotgun **9** | | | | | | | | | | | | | | | | | | | | |
| Muzzleloader larger than 45 Cal.**9** | | | | | | | | | | | | | | | | | | | | |
| PERMITS | | | | | | | | | | | | | | | | | | | | |
| Daily | | | ● | ● | | | | | | | | | | | | | | | | |
| Seasonal | | | ● | ● | | | | | | | | | | | | | | | | |
| State Land Shotgun Deer | | | | | | | | | | | | | | | | | | | | |
| Private Owned Shotgun and/or Rifle Deer | | | | | | | | | | | | | | | | | | | | |
| State Owned Turkey (Gun or Bow) | | | | | | | | | | | | | | | | | | | | |
| Private Owned Turkey (Gun or Bow) | | | | | | | | | | | | | | | | | | | | |
| State Owned Muzzleloader Deer | | | | | | | | | | | | | | | | | | | | |
| Private Owned Muzzleloader Deer | | | | | | | | | | | | | | | | | | | | |
| State or Private Archery Deer | | | | | | | | | | | | | | | | | | | | |
| BIDS | | | | | | | | | | | | | | | | | | | | |
| 4 yr. Trapper Bids (1982) | | | | | | | | | | | | | | | | | | | | |
| NOT ALLOWED | | | | | | | ● | | ● | | | | | | | ● | ● | | ● | |
| CERTIFICATES OF COMPETENCY | | | | | | | | | | | | | | | | | | | | |
| Firearms | | ● | ● | ● | ● | | | | | | | | | | | | | | | |
| Bow Hunting | | | | | | | | | | | | | | | | | ● | | | |
| Trapping | | | | | | | | | | | ● | ● | ● | ● | | | | | | ● |

| LANDOWNERS & DESCENDANTS ON OWN LAND-12 YRS. OF AGE AND OLDER | GUN | | | MUZZLE-LOADER | | | BOW | | | TRAPPING |
|---|---|---|---|---|---|---|---|---|---|---|
| | Small Game | Deer | Turkey | Small Game | Deer | Turkey | Small Game | Deer | Turkey | |
| LICENSES | | | | | | | | | | |
| Type 1 & 3 *Resident* | | | | | | | | | | |
| *Hunting, Trapping & Fishing* | | | | | | | | | | |
| Valid: a)Firearms | | | | | | | | | | |
| b)Bow | | | | | | | | | | |
| c)Trapping | | | | | | | | | | |
| d)Firearms & Bow | | | | | | | | | | |
| e)Firearms,Bow & Trapping | | | | | | | | | | |
| f)Bow & Trapping | | | | | | | | | | |
| g)Firearms & Trapping | | | | | | | | | | |
| Type 2 & 4 *Non-Resident* | | | | | | | | | | |
| *Hunting, Fishing* | | | | | | | | | | |
| Valid: h)Firearms | | | | | | | | | | |
| i)Bow | | | | | | | | | | |
| j)Firearms & Bow | | | | | | | | | | |
| 8. *Jr. Trapping* | | | | | | | | | | E |
| 10. *Armed Forces Member-Resident* | | | | | | | | | | |
| Valid: l)Firearms | | | | | | | | | | |
| m)Bow | | | | | | | | | | |
| n)Firearms & Bow | | | | | | | | | | |
| *Lifetime License to Hunt & Fish* | | | | | | | | | | |
| *Free Landowner Permit* | D | 6 | 1 | D | ● | | D | | 1 | E |
| Lineal Descendants | D | 6 | | D | ● | | D | | | E |
| PERMISSION | | | | | | | | | | |
| Written Permission | | | | | | | | | | |
| Validated Consent Forms | | | | | | | | | | |
| HUNTING EQUIPMENT | | | | | | | | | | |
| .22 Rimfire L.R.-Rifle | ● | | | | | | | | | ● |
| Pistol requires pistol permit | ● | | | | | | | | | ● |
| Shotgun | ● | 3 | 4 | | | | | | | ● |
| Rifle 6mm or larger | ● | ● | | | | | | | | ● |
| Bow & Arrow (7) | ● | | ● | | | | ● | ● | ● | ● |
| Muzzleloading Rifle or Shotgun 9 | ● | | | ● | | | | | | ● |
| Muzzleloader larger than 45 Cal.9 | ● | | | ● | F | | | | | ● |
| PERMITS | | | | | | | | | | |
| Daily | | | | | | | | | | |
| Seasonal | | | | | | | | | | |
| State Land Shotgun Deer | | | | | | | | | | |
| Private Owned Shotgun and/or Rifle Deer | | | | | | | | | | |
| State Owned Turkey (Gun or Bow) | | | | | | | | | | |
| Private Owned Turkey (Gun or Bow) | | | | | | | | | | |
| State Owned Muzzleloader Deer | | | | | | | | | | |
| Private Owned Muzzleloader Deer | | | | | | | | | | |
| State or Private Archery Deer | | | | | | | | ● | | |
| BIDS | | | | | | | | | | |
| 4 yr. Trapper Bids (1982) | | | | | | | | | | |
| NOT ALLOWED | | | | | | ● | | | | |
| CERTIFICATES OF COMPETENCY | | | | | | | | | | |
| Firearms | H | H | H | H | H | | | | | |
| Bow Hunting | | | | | | | H | H | H | |
| Trapping | | | | | | | | | | H |

## Key to chart:

*(1) Any landowner who owns 25 or more acres within the turkey hunt zone may receive a free turkey permit for himself and all lineal descendants for hunting on his land*

*(2) No shot larger than number two (2)*

*(3) 12, 16 or 20 gauge rifled slug*

*(4) 20 gauge or larger with 4,5, or 6 shot*

*(5) 3rd Saturday in January to 3rd Saturday in September*

*(6) For November and December*

*(7) No mechanical releases allowed*

*(8) No projectile larger than number two (2) shot*

*(9) No telescopic sights and only patched round ball in rifles*

*(A) Not required - but a good idea*

*(B) Cannot be a bid holder but can assist trapper on State land*

*(C) Landowner & lineal descendant may purchase private land muzzleloader, shotgun/rifle, and archery permits in addition to free permits*

*(D) During small game season no permit required*

*(E) Can trap on own land without license*

*(F) During muzzleloader season only*

*(G) Must have valid firearms portion of license*

*(H) 12 to 16 years old only*

*(I) Several hunting areas have their own specific regulations. All others require permit*

## Clean Air Act

From page 12

public wants the environmental laws made less strict."

At the same time people realize the burdens that the economy and the environment must bear as the Reagan Administration works to slow inflation and stabilize the economy. Harris acknowledged that Americans in "increasing numbers" favored "going slow on the imposition of new environmental controls--but not the relaxation of existing standards--if they were convinced that this would help our energy problem."

### THE MESSAGE IS CLEAR

Harris feels that his poll findings "speak for themselves."

The majority of Americans do not want to see those air pollution control gains made in the past 10 years thrown by the wayside. People have decided that a healthy environment should not be the trade-off for a healthy economy. Great strides have been made in air pollution control technology in the past 10 years, resulting in improved air quality in many areas. So the resounding question becomes, why turn back now?

### THERE ARE WAYS TO BECOME INVOLVED

The Administration will be acting on the Clean Air Act reauthorization as well as on proposals to relax tailpipe emission standards within the next few months. Your comments to our State's Congressmen and Senators would be appropriate at this time. Senators Stafford (VT), Dodd (CT), and Mitchell (ME) as well as Congressman Moffett (CT) are all closely involved with revisions and amendments to the Act.

Senator Christopher Dodd
U.S. Senate
Washington, D.C. 20510

Senator Lowell Weicker
313 Russell Senate Office Building
Washington, D.C. 20510

Rep. Sam Gejdenson
(2nd district)
1503 Longworth House Office Bldg.
Washington, D.C. 20515

Rep. Lawrence DeNardis
(3rd district)
1429 Longworth House Office Bldg.
Washington, D.C. 20515

Rep. Stewart McKinney
(4th district)
106 Cannon House Office Bldg.
Washington, D.C. 20515

Rep. William Ratchford
(5th district)
432 Cannon House Office Bldg.
Washington, D.C. 20515

Rep. Toby Moffett
(6th district)
127 Cannon House Office Bldg.
Washington, D.C. 20515

There is also, within the State, a citizen's committee known as the State Implementation Plan Revision Advisory Committee (SIPRAC). This committee acts in an advisory capacity to the Department of Environmental Protection on air quality issues in Connecticut. Meetings of the two subcommittees of SIPRAC are open to the general public. These groups meet regularly to discuss the air pollution problems caused by both stationary sources (industry) and mobile sources (automobiles). Groups such as these encourage citizen participation and provide an open forum for constructive idea exchange.

This is your opportunity to voice your opinion! For more information, or to be placed on our mailing list to receive air pollution information or meeting announcements contact: Robin W. Bray, Public Participation Coordinator, DEP Air Compliance Unit, State Office Building, Hartford, 06115; 566-2568. ■

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## Permits Issued

### Water Resources

#### Dams

12/14/81: Fritz J. DeRaad, East Haddam
To construct a dam on Hemlock Valley Brook in East Haddam. Conditions.

#### Encroachments

11/19/81: High Y Associates, Wilton
To enlarge an existing paved area riverward of established stream channel encroachment lines for the Norwalk River in Wilton east of Rt. 7. Conditions.

12/2/81: Town of Fairfield
To construct a storm water outfall riverward of established stream channel encroachment lines and below mean high water in the Rooster River on the south side of State Street Extension Bridge. Conditions.

### Tidal Wetlands

#### Structures & Dredging

11/30/81: Summerwood Master Assn., Old Saybrook
To construct a drawbridge across Cold Spring Brook in Old Saybrook across tidal wetlands. Conditions.

12/9/81: Southern New England Telephone Co., Hamden
To place a submerine cable in the Connecticut River from Old Saybrook to Old Lyme and across tidal wetlands in Old Saybrook. Conditions.

### Inland Wetlands

12/14/81: Louis & John D'Amato, Milford
To maintain fill materials previously placed on lots and place additional fill materials for a proposed industrial park in Milford. Conditions.

#### Structures & Dredging

11/20/81: John Ragsdale, West Mystic
To construct and maintain a 6 foot wide pile and timber dock extending 60 feet beyond mean high water from the southwest end of Ram Island in the mouth of the Mystic River. Conditions.

11/20/81: Clifford & Edna Farrell, Greenwich

To dredge approximately 360 cubic yards of material from an area in Greenwich Harbor adjacent to Shore Road. Conditions.

12/3/81: Dwight Juranie, East Haven
To retain and maintain a 280 ft. floating dock with finger piers, construct a pile and timber retaining wall adjacent to an existing travelift pit, and dredge 13,709 cubic yards of material from Morris Creek. Conditions.

12/9/81: Rope Realty, Inc., Mystic
To dredge 26,000 cubic yards of material, place 500 linear feet of riprap bulkhead, place 2,500 cubic yards of fill behind the bulkhead, construct 680 linear feet of pile and timber dock with 15 attached finger piers, and place a 5 by 106 foot floating dock in the Mystic River. Conditions.

12/16/81: James Stone & Robert Craig, New London
To construct and maintain a dock extending 60 feet into the Thames River from an existing bulkhead on Pequot Avenue in New London. Conditions.

## Water Compliance

11/23/81: Becton-Dickinson & Co. Inc., Canaan
To discharge to the Town of North Canaan Sewerage System an average daily flow of 16,750 gallons per day of domestic sewage and to groundwaters in the watershed of Swamp Brook an average daily flow of 13,750 gallons per day of sterilization wash waters. Conditions.

11/23/81: Crouse-Hinds Sepco Corporation, Windsor Locks
To discharge to the Connecticut River an average daily flow of 4,500 gallons per day of cooling water and boiler blowdown, and an average daily flow of 2,980 gallons per day of cooling water. Conditions.

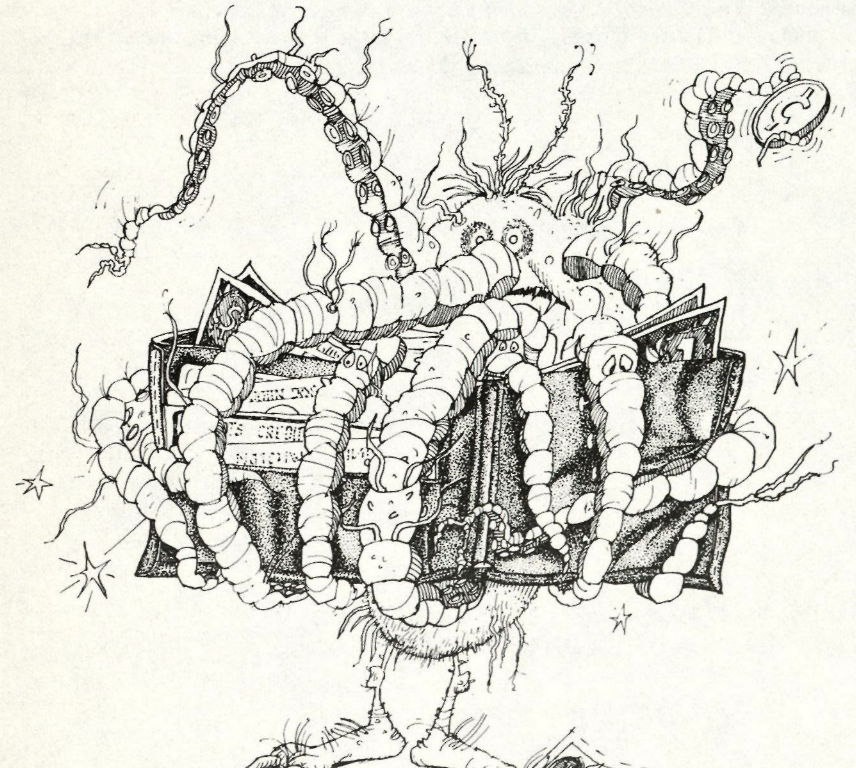
11/27/81: Schott Electronics, Inc., Ansonia
To discharge treated wastewaters from metal finishing operations to a storm drainage system leading to the Naugatuck River in an average daily flow of 6,000 gallons per day. Conditions.

11/27/81: LFE Corporation/Fluids Control Division, Hamden
To discharge 14,320 gallons per day of non-contact cooling water to the Mill River in Hamden. Conditions.

11/27/81: United Illuminating Company, New Haven
To discharge 144,000 gallons per day of non-contact cooling water to New Haven Harbor. Conditions.

11/27/81: Schott Electronis, Inc., Ansonia
To discharge an average daily flow of 1,000 gallons per day of pretreated wastewaters from metal finishing operations to the City of Ansonia sewerage system. Conditions.

11/27/81: The Jackson Newspaper, Inc., New Haven
To discharge 50 gallons per day of vehicle drippage to the City of New Haven sewerage system. Conditions.



## We didn't want to have to tell you . . .

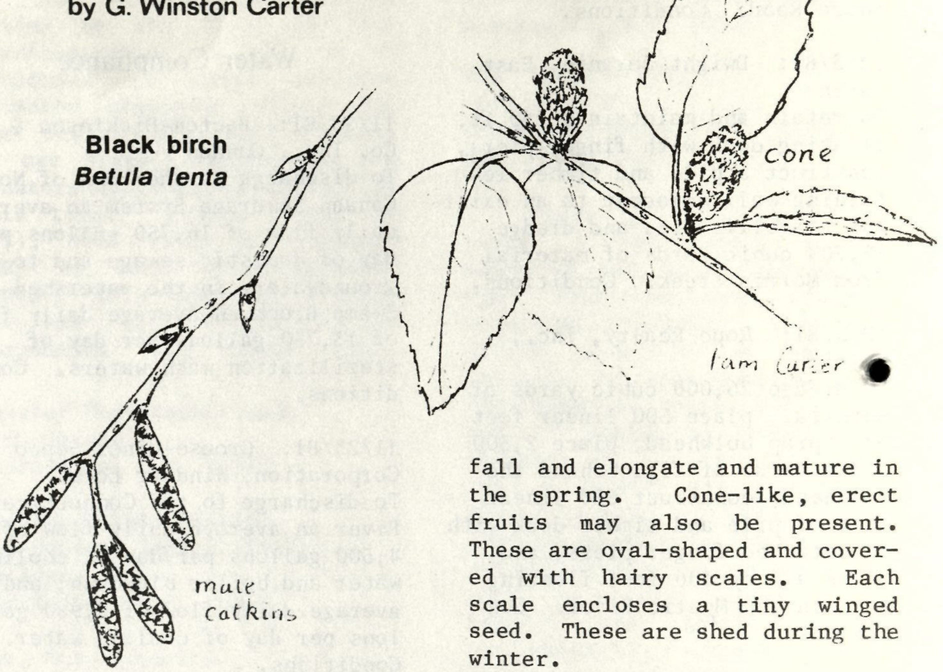
*but the economy's putting the squeeze on all of us. Effective February 1, we must raise our annual subscription rates to $5 per year (or 2 years for $9). Squeeze out a minute now, get a few gift subscriptions in the mail before our price goes up. Send your check or money order today, payable to "DEP Citizens' Bulletin." Include NAME, ADDRESS, and ZIP CODE. Mail to Editor, DEP Citizens' Bulletin, Rm. 112, State Office Bldg., Hartford, CT 06115.*

# Trailside Botanizing

by G. Winston Carter

Few trees delight the sense of smell like the black birch whose inner bark gives off a strong scent of wintergreen. This scent is a characteristic shared to a lesser degree by the yellow birch as well as a low growing plant called wintergreen, which is totally unrelated to the birches. This appealing fragrance is due to the presence of methyl salicylate which is found in all three plants. Wintergreen and black birch used to be the sources of the oil of wintergreen which was sold commercially. At present, nearly all of this substance is compounded chemically from coal tar products.

Black or sweet birch, as it is sometimes called, occurs commonly on rich dry slopes. It has a dark, almost black bark when mature, and unlike our other birches its bark is not papery. All our native birches have bark which is similar in color when they are very young. It is only when they become more mature that they have the characteristic color differences which are important for identification.



**Black birch**
***Betula lenta***

In winter a feature which attracts one's attention is the numerous catkins (staminate flowers). These form in the fall and elongate and mature in the spring. Cone-like, erect fruits may also be present. These are oval-shaped and covered with hairy scales. Each scale encloses a tiny winged seed. These are shed during the winter.

The wood of black birch has qualities which allow it to be used as a substitute for mahogany and cherry. It also makes very good firewood. The buds, seeds, and twigs are often eaten by various game animals.

DEP Citizens' Bulletin
State of Connecticut
Department of Environmental Protection
State Office Building
Hartford, Connecticut 06115

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